Features

- High breakdown voltage
  \( V_{CEO} = 1500 \text{ V} \)
- High speed switching
  \( t_i = 0.15 \mu\text{sec (typ.) at } f_H = 64 \text{ kHz} \)
- Isolated package
  TO–3PFM

Outline

1. Base
2. Collector
3. Emitter
### Absolute Maximum Ratings (Ta = 25°C)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collector to base voltage</td>
<td>$V_{CEO}$</td>
<td>1500</td>
<td>V</td>
</tr>
<tr>
<td>Collector to emitter voltage</td>
<td>$V_{CEO}$</td>
<td>700</td>
<td>V</td>
</tr>
<tr>
<td>Emitter to base voltage</td>
<td>$V_{EBO}$</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>Collector current</td>
<td>$I_c$</td>
<td>10</td>
<td>A</td>
</tr>
<tr>
<td>Collector peak current</td>
<td>$i_{(peak)}$</td>
<td>20</td>
<td>A</td>
</tr>
<tr>
<td>Collector power dissipation</td>
<td>$P_{c(Test)}$</td>
<td>50</td>
<td>W</td>
</tr>
<tr>
<td>Junction temperature</td>
<td>$T_j$</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>$T_{stg}$</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Note: 1. Value at $T_c = 25°C$

### Electrical Characteristics (Ta = 25°C)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collector to emitter breakdown voltage</td>
<td>$V_{(BR)CEO}$</td>
<td>700</td>
<td>—</td>
<td>—</td>
<td>V</td>
<td>$I_c = 10mA, R_{BE} = \infty$</td>
</tr>
<tr>
<td>Emitter to base breakdown voltage</td>
<td>$V_{(BR)EBO}$</td>
<td>6</td>
<td>—</td>
<td>—</td>
<td>V</td>
<td>$I_c = 10mA, I_c = 0$</td>
</tr>
<tr>
<td>Collector cutoff current</td>
<td>$I_{CES}$</td>
<td>—</td>
<td>—</td>
<td>500</td>
<td>μA</td>
<td>$V_{CE} = 1500V, R_{BE} = 0$</td>
</tr>
<tr>
<td>DC current transfer ratio</td>
<td>$h_{FE1}$</td>
<td>10</td>
<td>—</td>
<td>30</td>
<td>—</td>
<td>$V_{CE} = 5V, I_c = 1A$</td>
</tr>
<tr>
<td>DC current transfer ratio</td>
<td>$h_{FE2}$</td>
<td>3.5</td>
<td>—</td>
<td>6.5</td>
<td>—</td>
<td>$V_{CE} = 5V, I_c = 6A$</td>
</tr>
<tr>
<td>Collector to emitter saturation voltage</td>
<td>$V_{CE(sat)}$</td>
<td>—</td>
<td>—</td>
<td>5</td>
<td>V</td>
<td>$I_c = 6A, I_b = 1.6A$</td>
</tr>
<tr>
<td>Base to emitter saturation voltage</td>
<td>$V_{BE(sat)}$</td>
<td>—</td>
<td>—</td>
<td>1.5</td>
<td>V</td>
<td>$I_c = 6A, I_b = 1.6A$</td>
</tr>
<tr>
<td>Fall time</td>
<td>$t_f$</td>
<td>—</td>
<td>0.2</td>
<td>0.4</td>
<td>μs</td>
<td>$I_{CP} = 5A, I_{SI} = 1.6A, f_c = 31.5kHz$</td>
</tr>
<tr>
<td>Fall time</td>
<td>$t_f$</td>
<td>—</td>
<td>0.15</td>
<td>—</td>
<td>μs</td>
<td>$I_{CP} = 5A, I_{SI} = 1.3A, f_n = 64kHz$</td>
</tr>
</tbody>
</table>
Main Characteristics

Collector Power Dissipation vs. Temperature

Area of Safe Operation

Typical Output Characteristics

DC Current Transfer Ratio vs. Collector Current
Collector to Emitter Saturation Voltage vs. Collector Current

Base to Emitter Saturation Voltage vs. Collector Current

Collector to Emitter Saturation Voltage vs. Base Current

Fall Time vs. Base Current
Storage Time vs. Base Current

- $I_{CP} = 5\ A$
- $f_H = 64\ kHz$
- $T_c = 25^\circ C$

Storage Time $t_{stg}\ (\mu s)$

Base Current $I_{B1}\ (A)$
Package Dimensions

Unit: mm

Hitachi Code  TO-3PFM
EIAJ  —
JEDEC  —
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